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Assistant Commissioner for Patents,  
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On August 20, 2001

The Law Offices of Jonathan Alan Quine

By Deborah Berwick  
Deborah Berwick

Attorney Docket No. 02-100620US

Client Ref. No. 0139.310US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Steven H. Bass, *et al.*

Application No.: 09/760,010

Filed: January 10, 2001

For: INTEGRATED SYSTEMS AND  
METHODS FOR DIVERSITY  
GENERATION AND SCREENING

Examiner: **Unassigned**

Art Unit: 1644

INFORMATION DISCLOSURE  
STATEMENT UNDER 37 CFR § 1.97 and  
§ 1.98

Assistant Commissioner for Patents  
Washington, D.C. 20231

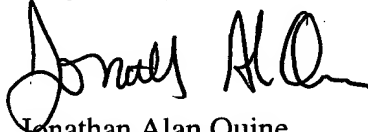
Sir:

The references cited on attached form PTO-1449 are being called to the attention of the Examiner. Copies of the references are enclosed. It is respectfully requested that the cited information be expressly considered during the prosecution of this application, and the references be made of record therein and appear among the "references cited" on any patent to issue therefrom.

As provided for by 37 CFR 1.97(g) and (h), no inference should be made that the information and references cited are prior art merely because they are in this statement and no representation is being made that a search has been conducted or that this statement encompasses all the possible relevant information.

Applicant believes that no fee is required for submission of this statement, since it is being submitted prior to the first Office Action. However, if a fee is required, the Commissioner is authorized to deduct such fee from the undersigned's Deposit Account No. 50-0893. Please deduct any additional fees from, or credit any overpayment to, the above-noted Deposit Account.

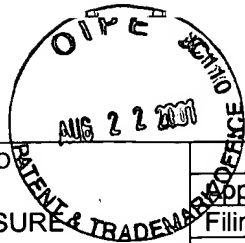
Respectfully submitted,

A handwritten signature in black ink, appearing to read "Jonathan Alan Quine", written in a cursive style.

Jonathan Alan Quine  
Reg. No. 41,261

THE LAW OFFICES OF JONATHAN ALAN QUINE  
P.O. Box 458  
Alameda, CA 94501  
Tel: (510) 337-7871  
Fax: (510) 337-7877

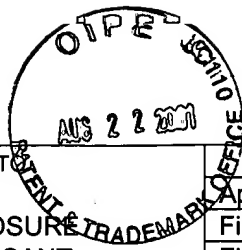
JAQ:db



Substitute for form 1449A-B/PTO  INFORMATION DISCLOSURE STATEMENT BY APPLICANT  (use as many sheets as necessary)	Complete if Known	
	Application Number	09/760,010
	Filing Date	January 10, 2001
	First Named Inventor	Steven H. Bass
	Group Art Unit	1644
	Examiner Name	Unassigned
	Attorney Docket Number	02-100620US

U.S. PATENT DOCUMENTS						
Examiner Initials	Cite No.	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, lines, Where Relevant Passages or Relevant Figures Appeal
		Number	Kind Code (if known)			
	AA	5,512,463		Stemmer	04-30-1996	
	AB	5,514,588		Varadaraj	05-07-1996	
	AC	5,605,793		Stemmer	02-25-1997	
	AD	5,763,239		Short et al.	06-09-1998	
	AE	5,789,228		Lam et al.	08-04-1998	
	AF	5,811,238		Stemmer et al.	09-22-1998	
	AG	5,814,473		Warren et al.	09-29-1998	
	AH	5,824,469		Horwitz et al.	10-20-1998	
	AI	5,830,696		Short	11-03-1998	
	AJ	5,830,721		Stemmer et al.	11-03-1998	
	AK	5,834,252		Stemmer et al.	11-10-1998	
	AL	5,837,458		Minushull et al.	11-17-1998	
	AM	5,866,363		Pieczenik	02-02-1999	
	AN	5,876,997		Kretz	03-02-1999	
	AO	5,925,749		Mathur, et al.	07-20-1999	
	AP	5,928,905		Stemmer, et al.	07-27-1999	
	AQ	5,939,250		Short, Jay M.	08-17-1999	
	AR	5,939,300		Robertson, et al.	08-17-1999	
	AS	5,942,430		Robertson, et al.	08-24-1999	
	AT	5,948,666		Callen, et al.	09-07-1999	
	AU	5,958,672		Short, Jay M.	09-28-1999	
	AV	5,958,751		Murphy, et al.	09-28-1999	
	AW	5,962,258		Mathur, et al.	10-05-1999	
	AX	5,962,283		Warren et al.	10-05-1999	
	AY	5,965,408		Short, Jay M.	10-12-1999	
	AZ	5,985,646		Murphy, et al.	11-16-1999	
	BA	6,001,574		Short et al.	12-14-1999	
Examiner Signature					Date Considered	

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



Substitute for form 1449A-B/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  <i>(use as many sheets as necessary)</i>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2" style="text-align: left; padding: 2px;">Complete if Known</th> </tr> <tr> <td style="width: 60%; padding: 2px;">Application Number</td> <td style="padding: 2px;"><b>09/760,010</b></td> </tr> <tr> <td style="padding: 2px;">Filing Date</td> <td style="padding: 2px;"><b>January 10, 2001</b></td> </tr> <tr> <td style="padding: 2px;">First Named Inventor</td> <td style="padding: 2px;"><b>Steven H. Bass</b></td> </tr> <tr> <td style="padding: 2px;">Group Art Unit</td> <td style="padding: 2px;"><b>1644</b></td> </tr> <tr> <td style="padding: 2px;">Examiner Name</td> <td style="padding: 2px;"><b>Unassigned</b></td> </tr> <tr> <td style="padding: 2px;">Attorney Docket Number</td> <td style="padding: 2px;"><b>02-100620US</b></td> </tr> </table>	Complete if Known		Application Number	<b>09/760,010</b>	Filing Date	<b>January 10, 2001</b>	First Named Inventor	<b>Steven H. Bass</b>	Group Art Unit	<b>1644</b>	Examiner Name	<b>Unassigned</b>	Attorney Docket Number	<b>02-100620US</b>
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	BB	6,004,788		Short	12-21-1999	
	BC	6,030,779		Short	02-29-2000	
	BD	6,054,267		Short	04-25-2000	
	BE	6,057,103		Short	05-02-2000	
	BF	6,096,548		Stemmer	08-01-2000	
	BG	6,117,679		Stemmer	09-12-2000	
	BH	6,132,970		Stemmer	10-17-2000	
	BI	6,165,793		Stemmer	12-26-2000	
	BJ	6,168,919		Short	01-02-2001	
	BK	6,171,820		Short	01-09-2001	
	BL	6,174,673		Short, et al.	01-16-2001	
	BM	6,180,406		Stemmer	01-30-2001	
	BN	6,238,884		Short et al.	05-29-2001	

FOREIGN PATENT DOCUMENTS								
Examiner Initials	Cite No.	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T
		Office	Number	Kind Code (if known)				
	BO	WO	97/07205		Novo Nordisk A/S	02-27-1997		
	BP	WO	97/20078		Affymax Technologies	06-05-1997		
	BQ	WO	97/25410		Novo Nordisk A/S	07-17-1997		
	BR	WO	97/35957		Maxygen, Inc.	10-02-1997		
	BS	WO	97/35966		Maxygen, Inc.	10-02-1997		
	BT	WO	97/44361		Recombinant Biocatalysis Inc.	11-27-1997		
	BU	WO	97/48416		Recombinant Biocatalysis, Inc.	12-24-1997		
	BV	WO	97/48717		Recombinant Biocatalysis Inc	12-24-1997		
	BW	WO	97/48794		Recombinant Biocatalysis Inc	12-24-1997		

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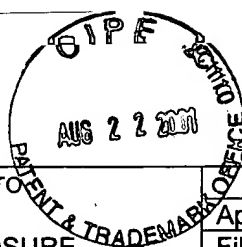


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	Attorney Docket Number	<b>02-100620US</b>

	BX	WO	98/00526		Recombinant Biocatalysis Inc	01-08-1998		
	BY	WO	98/01581		Recombinant Biocatalysis Inc	01-15-1998		
	BZ	WO	98/13485		Maxygen, Inc.	04-02-1998		
	CA	WO	98/13487		Maxygen, Inc.	04-02-1998		
	CB	WO	98/24799		Diversa Corp.	06-11-1998		
	CC	WO	98/27230		Maxygen, Inc.	06-25-1998		
	CD	WO	98/28416		Novo Nordisk A/S	07-02-1998		
	CE	WO	98/31837		Maxygen, Inc.	07-23-1998		
	CF	WO	98/36080		The Dow Chemical Company	08-20-1998		
	CG	WO	98/41622		Novo Nordisk A/S	09-24-1998		
	CH	WO	98/41623		Novo Nordisk A/S	09-24-1998		
	CI	WO	98/41653		Novo Nordisk A/S	09-24-1998		
	CJ	WO	98/42832		California Institute of Technology	10-01-1998		
	CK	WO	98/48034		Diversa Corp.	10-29-1998		
	CL	WO	98/58085		Diversa Corp.	12-23-1998		
	CM	WO	99/07837		Diversa Corp.	02-19-1999		
	CN	WO	99/08539		Diversa Corp.	02-25-1999		
	CO	WO	99/10472		Diversa Corp.	03-04-1999		
	CP	WO	99/10539		Diversa Corp.	03-04-1999		
	CQ	WO	99/19518		Diversa Corp.	04-22-1999		
	CR	EP	0911396A2		Maxygen, Inc.	04-28-1999		
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	CV	WO	99/23236		Diversa Corp.	05-14-1999		
	CW	EP	0934999A1		Maxygen, Inc.	08-11-1999		

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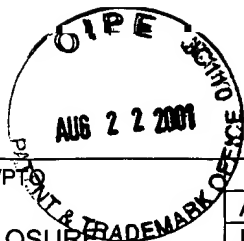
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	CZ	WO	99/41383		Maxygen, Inc.	08-19-1999		
	DA	WO	99/41402		Maxygen, Inc.	08-19-1999		
	DB	WO	99/45154		Diversa Corp.	09-10-1999		
	DC	WO	99/57128		Maxygen, Inc.	11-11-1999		
	DD	WO	99/65927		Maxygen, Inc.	12-23-1999		
	DE	WO	00/42560		Maxygen, Inc.	07-20-2000		
	DF	WO	00/42561		Maxygen, Inc.	07-20-2000		
	DG	WO	00/53744		Diversa Corporation	09-14-2000		
	DH	WO	00/58517		Diversa Corporation	10-05-2000		
	DI							

**OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS**

Examiner Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T
	DJ	Chang, C., et al. (1999) "Evolution of a cytokine using DNA family shuffling." <u>Nature Biotechnology</u> 17:793-797.	
	DK	Christians, F.C. et al., (1999) "Directed evolution of thymidine kinase for AZT phosphorylation using DNA family shuffling." <u>Nature Biotechnology</u> 17:259-264.	
	DL	Coco et al., (2001) "DNA shuffling method for generating highly recombined genes and evolved enzymes" <u>Nature Biotechnology</u> vol. 19 pp. 354-359	
	DM	Crameri et al., (1993) "10(20)-Fold aptamer library amplification without gel purification," <u>Nuc. Acids Res.</u> 21(18):4410.	
	DN	Crameri, A. & Stemmer W.P.C. (1995) "Combinatorial multiple cassette mutagenesis creates all the permutations of mutant and wildtype cassettes." <u>Biotechniques</u> 18:194-195.	
	DO	Crameri, A. et al. (1996) "Improved green fluorescent protein by molecular evolution using DNA shuffling." <u>Nature Biotechnology</u> 14:315-319.	
	DP	Crameri, A. et al. (1996) "Construction and evolution of antibody-phage libraries by DNA shuffling." <u>Nature Medicine</u> 2:100-103.	
	DQ	Crameri, A. et al., (1997) "Molecular evolution of an arsenate detoxification pathway by DNA shuffling." <u>Nature Biotechnology</u> 15:436-438	
	DR	Crameri, A. et al., (1998) "DNA shuffling of a family of genes from diverse species accelerates directed evolution." <u>Nature</u> 391:288-291.	

Examiner Signature	Date Considered
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	Filing Date	January 10, 2001
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	Group Art Unit	1644
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	Attorney Docket Number	02-100620US

DS	Gates, C.M. et al., (1996) "Affinity selective isolation of ligands from peptide libraries through display on a lac repressor 'headpiece dimer'. <u>Journal of Molecular Biology</u> 255:373-386.
DT	Minshull, J., Stemmer, W.P.C. (1999) "Protein evolution by molecular breeding." <u>Current Opinion in Chemical Biology</u> 3:284-290.
DU	Ness, J. et al., (1999) "DNA shuffling of subgenomic sequences of subtilisin." <u>Nature Biotechnology</u> 17:893-896.
DV	Patten, P.A. et al., (1997) "Application of DNA Shuffling to Pharmaceuticals and Vaccines." <u>Current Opinion in Biotechnology</u> 8:724-733.
DW	Pelletier, Joelle N., (2001) "A Rachitt for our toolbox" <u>Nature Biotechnology</u> vol. 19, p. 314-315
DX	Stemmer, W.P.C. (1994) "DNA Shuffling by random fragmentation and reassembly: In vitro recombination for molecular evolution." <u>PNAS</u> 91:10751
DY	Stemmer, W.P.C. (1994) "Rapid evolution of a protein in vitro by DNA shuffling." <u>Nature</u> 370:389-391.
DZ	Stemmer, W.P.C. (1995) "The Evolution of Molecular Computation." <u>Science</u> 270:1510
EA	Stemmer, W.P.C. (1995) "Searching Sequence Space." <u>Bio/Technology</u> 13:549-553.
EB	Stemmer, W.P.C. (1996) "Sexual PCR and Assembly PCR." In: <u>The Encyclopedia of Molecular Biology</u> . VCH Publishers, New York. pp. 447-457.
EC	Stemmer, W.P.C. & Soong, N.W. (1999) "Molecular breeding of viruses for targeting and other clinical properties." <u>Tumor Targeting</u> 4:59-62.
ED	Zhang, J. et al., (1997) "Directed evolution of an effective fucosidase from a galactosidase by DNA shuffling and screening." <u>Proceedings of the National Academy of Sciences, USA</u> 94:4504-4509.

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